

II. THE COSMOLOGICAL ARGUMENT

AIMS AND OBJECTIVES

You will be introduced to two cosmological arguments, one used in the 13th century by Thomas Aquinas, and one of a type used in the 17th and 18th centuries, of which G.W. Leibniz was a leading exponent. The arguments will be presented (the second one in David Hume's formulation) and discussed. There are five **documents** to go with this text, each presenting an original text.

INTRODUCTION

The expression 'cosmological proof' was invented by Kant (*Critique of Pure Reason*, B632), and used by him to designate arguments which begin with propositions about empirical reality ('the world'), but propositions that 'abstract from all special properties through which this world may differ from any other possible world'. That is, these arguments begin from maximally non-specific empirical facts, such as the existence of motion, change, or causal relations in general, and conclude to the existence of a first cause that does not possess those features. Arguments of this type were used by Plato (*The Laws*, X) and Aristotle (*Physics*, VIII), not to speak of Islamic (al Ghazali, ibn Rushd), Jewish (Maimonides) and Christian thinkers.

THE 'FIRST WAY' OF THOMAS AQUINAS

Aquinas held that there were five ways to prove that God exists. He stated these ways one after the other in his *Summa Theologiae*, Ia (= Part I), question 2, article 3). The First Way, which Aquinas reckoned to be the most obvious, is also set out in an earlier work, the *Summa contra Gentiles* I.13, in a conveniently shorter version.

Please read **Document 8**, which gives both versions of the First Way:

[A] Whatever is in motion, is moved by something else. Now it is obvious to the senses that some things are in motion, for instance the sun. Any such thing therefore is moved by some other mover. This mover in turn either is in motion or not in motion. If it is not in motion, then the thesis is proved that it is necessary to assign some immovable mover. And this we call God. If, however, it is in motion, then it is moved by another mover. Either this regress must go on for ever; or we must come to some immovable mover. But the regress cannot go on for ever. Therefore, it is necessary to assign some immovable first mover. (Aquinas, *Summa contra Gentiles* 1.13. This transl. in A.Kenny, *The Five Ways* (London: Routledge & Kegan Paul, 1969), pp.11-12)

[B] It must be said that God's existence can be proved in five ways. The first and most obvious way is based on motion. It is certain as a matter of sense-observation that some things in this world are in motion. Now whatever is in motion, is moved by something else. For nothing is in motion except in so far as it is in potentiality to the term of its motion. Something moves, on the other hand, insofar as it is in actuality. This is because to move is precisely to bring something from potentiality to actuality; but a thing cannot be brought from potentiality to actuality except by something which is itself in actuality. Thus something that is actually hot, like fire, makes something which is potentially hot - say wood - to be actually hot: and in this way it moves and alters it. Now it is not possible for the same thing to be, at the same time and in the same respect, in actuality and in potentiality; for what is actually hot cannot simultaneously be potentially hot, though it simultaneously be potentially cold. So it is impossible that in the same respect and in the same manner anything should be both mover and moved, or that it should move itself. So whatever is in motion, must be moved by something else. Moreover, this something else, if

it too is in motion, must itself be moved by something else, and that in turn by yet another thing. But this cannot go on for ever: because if it did there would be no first mover, and consequently no other mover at all, since second movers do not move except when moved by a first mover, just as a stick does not move anything except when moved by a hand. And so we must reach a first mover which is not moved by anything: and this all men think of as God.

(Aquinas, *Summa Theologiae* Ia, qu. 2, art.3. This transl. in A. Kenny, *The Five Ways* (London: Routledge & Kegan Paul, 1969), pp.6-7)

Exercise

- (1) In contemporary English, 'motion' means change of place. Is this the meaning it has in **Document 8**?
- (2) In another place, Aquinas said that there was nothing impossible in the idea of an endless series of ancestors. So what kind of endless series does he declare to be impossible in **Document 8**?
- (3) Are you convinced by the argument in [B] of **Document 8** for the impossibility of the endless series?

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Let us now consider the main argument of the *Summa contra Gentiles*, slightly rephrased as follows:

- (1) Some things are in motion.
- (2) Whatever is in motion is being moved by something else. [See [B] for reasons.]
- (3) Let X be a thing in motion.
- (4) Then X is being moved by something else, call it M^1 .
- (5) M^1 is either itself in motion, or not in motion.
- (6) If it is not in motion, then it is an unmoving cause of motion (a first mover). [Now go to 9]
- (7) If it is in motion, then it is being moved by something else, call it M^2 , and is a second mover.
- [Steps 5-7 may now be repeated for M^2 , and a new mover, M^3 , appears. It seems that this process can be repeated endlessly. But]
- (8) A series of second movers cannot go back endlessly. [See **Document 8 [B]**, and below, for reasons.]
- (9) Therefore, there is a first mover of X.
- (10) Everyone calls God a first mover.

Terminology: a *first mover* is an entity that causes motion without itself being in motion; a *second mover* is an entity that causes motion by being itself in motion.

A crucial step in the argument is (8). Aquinas undertakes to prove it by means of a subsidiary argument, of *reductio ad absurdum* form, as follows (see **Document 8 [B]**):

- (A) X is in motion.
- (B) The movers of X form an endless series of second movers. [Premiss to be disproved]
- (C) Then there is no first mover of X.
- (D) Second movers cause motion only when being moved by a first mover.
- (E) So if there is no first mover in the series of the movers of X, there are no second movers either.

- (F) If there is no first mover of X, nor any second movers of X, then X is not in motion.
 (G) But X is in motion.
 (H) Therefore (B) is false, and the series of second movers of X does not go back endlessly.

Exercises

- (1) Suppose that the main argument proves that (9) is true. Is that tantamount to proving that *God* exists? If not, what more would Aquinas need to prove?
 (2) Suppose we accept proposition (2) in the main argument. Do you think that it entitles Aquinas to assert proposition (D) in the subsidiary argument? If not, what proposition is he entitled to assert, and will it logically imply his claim (9)?
 (3) Kenny (1969), pp.28-9, reminds us that Newton's First Law of Motion states that every physical object 'perseveres in its state of rest, or of uniform motion in a straight line, unless it is compelled to change that state by forces impressed thereon.' If you accept this Law, can you consistently also accept proposition (2) in the main argument?

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AQUINAS AND NEWTON

Kenny (1969), p.28, has pointed out that acceptance of Newton's First Law makes it possible to explain X's motion at time t in a way not recognized by Aquinas, namely in terms of

- (1) X's motion at some earlier time t_n ; and
 (2) the fact that between t_n and t X's motion was not subjected to 'impressed forces.' Such an explanation would be acceptable to Newton even if X were the only object in the universe.

WHY IS AN INFINITE REGRESS OF CAUSES IMPOSSIBLE?

In the subsidiary argument above, Aquinas says:

- (D) Second movers cause motion only when being moved by a first mover.

Now given the definition of 'second mover,' together with

- (2) Whatever is in motion is being moved by something else

all that Aquinas is entitled to say is

- (D1) Second movers cause motion only when being moved by *another* mover.

It looks, in fact, as if (D) were just assuming what needs to be proved, the existence of a first mover. However, matters are more complex.

The causal series involved in the First Way is, to use Aquinas' terminology, a *per se* (or *essentially*) ordered causal series. Take a causal series such as a hand moving a stick which is moving a stone. The stick moves the stone because, and just as long as, it is itself moved by the hand. Or, in the terminology of the medieval Schools, the stone depends upon the stick 'precisely in its act of causation.' Such a series is contrasted with an *incidentally* (or *accidentally*) ordered causal series, such as 'Prince Albert fathered Edward VII; Edward VII fathered George V; George V fathered George VI; George VI fathered Elizabeth II.' The difference is that it is not by virtue of being fathered that an individual fathers: one might instance Adam. Incidentally ordered causal series can go back for ever, but not essentially ordered ones. Why not?

The causal series referred to in Aquinas' arguments is a series of *simultaneously* operating causes, unlike the incidentally ordered series. Is it the simultaneity of the causes that leads Aquinas to believe that the series cannot go back for ever? Please now read **Document 9**:

It is impossible to proceed to infinity in the order of efficient causes which act together at the same time, because in that case the effect would have to depend on an infinite number

of actions simultaneously existing. And such cases are essentially infinite, because their infinity is required for the effect caused by them. On the other hand, in the sphere of non-simultaneously acting causes, it is not impossible to proceed to infinity. And the infinity here is incidental to the causes; thus it is incidental to Socrates' father that he is another man's son or not. But it is not incidental to the stick, in moving the stone, that it be moved by the hand; for the stick causes motion just in so far as it is moved.

(Aquinas, *Summa Contra Gentiles* 11.38. This transl. in P. Brown, 'Infinite Causal Regression', *The Philosophical Review* LXXV (1966); repr. in A. Kenny (ed.), *Aquinas* (London: Macmillan & Co., 1969), pp. 214-36. This extract in Kenny (ed.), p. 227. I have substituted 'incidental' for 'accidental'.)

It is possible to read this argument as follows:

- (1) If an event E is the effect of a series of essentially ordered *second* causes only, it is the effect of an infinity of simultaneous 'acts' of causing.
- (2) But the existence of an actual infinity (which is what this infinity would be) is impossible.
- (3) Therefore, the series of the essentially ordered causes of E must terminate (in a first cause).

But (2) cannot be Aquinas' reason for concluding to (3), because, as Brown (1969), p.228, has pointed out, Aquinas also held that

[it does not] make any difference whether there are a finite or an infinite number of intermediates [second causes], because so long as they have the nature of intermediates they cannot be the first cause of motion.

The 'because' clause needs to be read sympathetically, as meaning that so long as they have the nature of intermediates none of them can be *the* cause of motion, which is the first cause. Otherwise, it becomes a mere analytic truth. So what was Aquinas' argument?

Following Brown, we begin with the principle of the *transitivity* of 'moves' ('causes motion'). More specifically, 'moves' is transitive in an *essentially* ordered causal series. Thus, if a is moved by b by virtue of b's being moved by c, a is moved by c. (In an incidentally ordered causal series this is not so. For example, if a is moved by b, which has earlier been moved by c, it would be wrong to conclude that a is moved by c.) On the basis of this principle of transitivity Brown reconstructs Aquinas' argument as follows: assume that there is no first cause of a's motion. Then a's motion is caused by the simultaneous motion of b, which in its turn is caused by the simultaneous motion of c, and so on endlessly. That is, a's motion is the effect of essentially ordered second causes. But it will not be possible to identify any member of the series as the one *real* mover of a, or as the one *explanatory* cause of a's motion: any member m whose motion we may try to call the explanatory cause of a's motion will be relegated to the status of mere instrument or intermediate (Brown (1969), p.232) once we remind ourselves that m's causative motion is itself caused by the motion of a prior member of the series. (This argument would not work unless the series of causes was endless; but it does not turn on the question of the possibility of an actual infinity. See the quotation from Aquinas above.) If all the causes of a's motion are second causes, then a's motion is inexplicable and unintelligible. But it is not; so there is after all a first cause of it.

Exercises

- (1) Is the principle of the transitivity of 'moves' enough by itself to give Aquinas the conclusion that any second cause in an essentially ordered series is a 'mere instrument or intermediate'?

(2) It is assumed above that being the first cause is at least a necessary condition of being the real cause or explanation of a's motion. Does the way we ordinarily speak of explanation correspond to this requirement? Do they lack something if they contain no reference to a first cause?

(3) For Aquinas God is the unmoving first cause of every change. Does reference to God provide the same kind of explanation as does reference to a moving cause?

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BROWN'S READING

Please read section [A] of **Document 10**:

It is clear that everything that is moved is moved by the movement that is further back in the series as well as by that which immediately moves it; in fact, the earlier movement is that which more strictly moves it.

(Aristotle, Physics 257a10-13, quoted in Brown, op. cit. See Kenny (ed.), p.234.)

Brown (1969) reads this document as saying (implying?) 'that an unmoved mover has some sort of causal *responsibility* in a way that a moved mover has not' (p.234). He calls it a 'quasi-legalistic' sense of cause, and uses the following analogy:

car 1 is rammed by car 2, because

car 2 was rammed by car 3, because

car 3 was rammed by car 4, and so on.

If the series is endless, the driver of car 1 cannot successfully sue any other driver: each driver sued will plead that it wasn't his (or her) fault that he (or she) rammed. In fact, each will have played as passive a part as dominoes knocked over in a line. Only the first cause, if there is one, is truly active and responsible. Brown continues in section [B] of **Document 10**, which you should now read:

Now if this series of rammings extended ad infinitum, there would be no one whom [the driver of car 1] could successfully sue as having caused the dent in his bumper; there would, in short, have been no cause for the accident at all. But if there were no cause, no mover, then there would be no effect, no moved, either - which is patently false, since [car 1]'s bumper is dented and [the] car was moved. Therefore there cannot be a regress to infinity of ramming automobiles, but rather someone was the first cause of the whole series of accidents. (P. Brown, 'Infinite Causal Regression', *The Philosophical Review* LXXV (1966); repr. in A. Kenny (ed.), *Aquinas* (London: Macmillan & Co., 1969), pp. 214-36.

This extract in Kenny (ed.), pp. 234-5.)

Exercise

In what sense does section [B] of **Document 10** use the word 'cause'?

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CLOSING REMARKS ON AQUINAS

Aquinas' argument rests on the assumption that the real cause of any caused event is an uncaused active force, that which makes things happen. Everything else is made to happen. Aquinas speaks of second causes as moving things, but as section [A] of **Document 10** shows, this is not strictly correct. We may speak of one car *moving* another, but this should always be understood as one car *being made to move* another. This notion of cause is evidently very well suited to

express a religious view of the world as entirely the effect of divine activity. It was later challenged, even before the end of the medieval period, by the notion of cause as constant conjunction. In a secularized version, it persisted as the notion of causal necessitation.

A LATER COSMOLOGICAL ARGUMENT

See **Documents 11 and 12**. **Document 4** is Hume's slightly simplified presentation of an argument of the type given by Leibniz in **Document 12** (See end of this block.) This text uses **Document 11** ('Demea's argument').

The argument in **Document 11** begins from the fact of the existence of the universe, and argues that the question 'Why does it exist?' must be answered in terms of the activity of a divine agent:

DEMEA: The argument which I would insist on is the common one. Whatever exists must have a cause or reason of its existence, it being absolutely impossible for anything to produce itself or be the cause of its own existence. In mounting up, therefore, from effects to causes, we must either go on in tracing an infinite succession, without any ultimate cause at all, or must at last have recourse to some ultimate cause that is necessarily existent: Now, that the first supposition is absurd may be thus proved. In the infinite chain or succession of causes and effects, each single effect is determined to exist by the power and efficacy of that cause which immediately preceded; but the whole eternal chain or succession, taken together, is not determined or caused by anything: And yet it is evident that it requires a cause or reason, as much as any particular object which begins to exist in time. The question is still reasonable why this particular succession of causes existed from eternity, and not any other succession or no succession at all. If there be no necessarily existent being, any supposition which can be formed is equally possible; nor is there any more absurdity in nothing's having existed from eternity than there is in that succession of causes which constitutes the universe. What was it then, which determined something to exist rather than nothing, and bestowed being on a particular possibility, exclusive of the rest? External causes, there are supposed to be none. Chance is a word without a meaning. Was it nothing? But that can never produce anything. We must, therefore, have recourse to a necessarily existent Being who carries the reason of his existence in himself and who cannot be supposed not to exist, without an express contradiction. There is, consequently, such a Being--that is, there is a Deity.

CLEANTHES: Nothing that is distinctly conceivable implies a contradiction. Whatever we conceive as existent, we can also conceive as non-existent. There is no being, therefore, whose non-existence implies a contradiction.

In tracing an eternal succession of objects it seems absurd to inquire for a general cause or first author. How can anything that exists from eternity have a cause, since that relation implies a priority in time and a beginning of existence? In such a chain, too, or succession of objects, each part is caused by that which preceded it, and causes that which succeeds it. Where then is the difficulty? But the whole, you say, wants a cause. I answer that the uniting of these parts into a whole, like the uniting of several distinct countries into one kingdom, or several distinct members into one body, is performed merely by an arbitrary act of the mind, and has no influence on the nature of things. Did I show you the particular causes of each individual in a collection of twenty particles of matter, I should think it very unreasonable should you afterwards ask me what was the cause of the whole twenty. This is sufficiently explained in explaining the cause of the parts.

PHILO: Is it not probable, I ask, that the whole economy of the universe is conducted by a like necessity, though no human algebra can furnish a key which solves the difficulty? And instead of admiring the order of natural beings, may it not happen that, could we penetrate

into the intimate nature of bodies, we should clearly see why it was absolutely impossible they could ever admit of any other disposition?
 (David Hume, *Dialogues Concerning Natural Religion*, Part IX. Repr. in R.H. Popkin (ed.), *David Hume: Dialogues Concerning Natural Religion* (Indianapolis & Cambridge: Hackett Publishing Co., 1980), pp. 54-6) **Note:** Hume began work on the *Dialogues* in the early 1750s, but put them aside, having been advised that to publish such a work would cause him a lot of trouble. He resumed work on them in 1775, when he realized that he was dying, and finished in 1776, the year of his death, having made provision in his will for their posthumous publication. They duly appeared in 1779. The *Dialogues* are a three-sided conversation between Demea, the representative of traditional orthodoxy, Cleanthes, who claims to be able to establish God's existence and properties on an empirical and scientific basis, and Philo, the sceptic. Demea and Philo criticize Cleanthes' argument; Cleanthes and Philo criticize Demea's cosmological argument. Demea refuses even to consider the view that God is not good, and walks out in Part XI. On the question of whose views Hume endorses, or comes nearest to endorsing, see the Editor's Introduction in R.H. Popkin's edition.)

IS THIS COSMOLOGICAL ARGUMENT AN ONTOLOGICAL ARGUMENT?

The principle governing Demea's argument is 'Whatever exists must have a cause or reason of its existence' (a variant of the Principle of Sufficient Reason). The principle will not be satisfied if we try to explain each event in terms of its cause, and that cause in terms of its cause, and so on endlessly. Because such a tactic fails to recognize that 'the whole eternal chain or succession, taken together' must also have a cause or reason of its existence. Demea then considers three possible replies to the question 'Why does *this* universe exist from eternity?' and concludes that the answer consists in the activity of 'necessarily existent Being ... who cannot be supposed not to exist, without an express contradiction.' (NB: it is here implied that the essential difference between this Being or Deity, the cause of the existence of the entire universe, on the one hand, and the universe and its constituents (caused causes) on the other is that everything except the Deity can be supposed without contradiction not to exist.)

Kant pounced on the concept of a necessarily existent being, claiming that 'the so-called cosmological proof really owes any cogency which it may have to the ontological proof from mere concepts' (*Critique of Pure Reason*, B635). In fact, he says, the cosmological argument is merely the ontological argument in disguise (B634). It uses the concept of a supremely real being (an *ens realissimum*), a concept from which necessary existence can be inferred (from which existence is necessarily inferred?), and whose use means that the argument does not need any empirical premisses.

Exercise

Do you agree with Kant's criticism?

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Mackie (1982), pp.82-3, has shown that Kant's critique fails. Demea's argument uses the concept of a being whose existence cannot be denied without contradiction, but does not conclude, *merely from the nature of the concept*, that there is such a being. So this is not an ontological argument, and the empirical premisses are essential. However, Demea remains vulnerable if Kant were to argue that the very concept of an *ens realissimum* is illegitimate, on the ground that it treats existence as a perfection. But would such an argument be beside the

point, since Demea argues that the concept includes existence, not because such a being must be perfect, but because it must be the reason of its own existence?

OBJECTIONS TO DEMEA (1)

Cleanthes (the representative of ‘scientific’ proofs of God’s existence) claims that ‘Whatever we can conceive as existent, we can also conceive as non-existent.’

Exercise

Suppose Demea replies, ‘How *can* one conceive as non-existent something whose very definition includes existence?’ What should Cleanthes say?

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OBJECTIONS TO DEMEA (2)

Cleanthes alleges that the causal relation implies two things: ‘a priority in time and a beginning of existence.’

Exercise

What is prior in time in the causal relation? Is it the existence or the activity of the cause? Must there be temporal priority? And does every causal relation involve a beginning of existence?

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OBJECTIONS TO DEMEA (3)

Cleanthes further objects that the universe is not a real whole. Consequently, that the question ‘What is the cause or reason of the existence of the universe as a whole?’ is a pseudo-question, and the only real questions concern the existence of the various constituents of the universe.

Exercise

Do you think that Cleanthes’ examples of artificial wholes are convincing? What might be the difference between an artificial and a real whole?

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A kingdom created by uniting several countries may be an artificial whole in the sense that it is a human creation, but in another sense it is *not* an artificial whole: because the state of affairs resulting from the union is really different from that existing before it. For example, the monarch’s word now has authority in all the once separate countries. (Was Hume, writing the *Dialogues* about 1751, thinking of the union of England and Scotland in 1707, implying that it had made no real difference?)

A car consists of many distinct parts. Does it follow that for a car to exist is simply for that collection of parts to exist? Each part has its own causes of existence. Does it follow that to list all those causes is to give the cause of the existence of the car? No, for, when all those causes have been listed, there remains a question to answer: how did those parts come to be assembled in that way? However, it should not be assumed that any answer to such a question will mention some cause that is not any of the parts—see Philo’s closing remark in **Document 11**.

A successful cosmological argument would have to consider whether the universe is a mere aggregate (the sum of things) or a real whole; and whether, if it is a real whole, its being such has to be attributed to some external agency. These questions are also relevant to the argument from design.

THE PRINCIPLE OF SUFFICIENT REASON (PSR)

Mackie (1982), pp.85-6, rejects as implausible the view that the PSR is known *a priori*. He grants that inquiry in many fields is guided by the rule that like causes produce like effects (or, as we might say, 'No difference without a difference'), and in general by the search for, and expectation of, causes and regularities and reasons. In so far as we have an epistemic justification for relying on such principles, it is *a posteriori*, and consists in our success in interpreting the world with their help.

But it seems inadequate to say that such principles are justified *a posteriori*, in so far as they are justified at all. It is not as if we had a notion of inquiry, still less of a successful inquiry, such that these principles function as *aids* to an independently specified form of success. It is rather that these principles go to *constitute* the very notions of inquiry and of success in inquiry. On the other hand, we cannot conclude that the principles are *a priori*, since the fact that we have this concept of inquiry cannot be separated from the fact that such inquiries frequently succeed.

Mackie (1982), p.86, makes the point that any explanation rests on 'brute facts.' Scientific inquiry may be constituted and regulated by the principle that for every brute fact there is an explanation; but that is not equivalent to the principle that there is an explanation that covers every brute fact.

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INTERNET RESOURCE

<http://plato.stanford.edu/entries/cosmology-theology>. The text and bibliography introduce to issues raised by recent cosmological hypotheses.

Document 12

7. Up till now we have spoken as physicists merely; now we must rise to metaphysics, making use of the great principle, commonly but little employed, which holds that nothing takes place without sufficient reason, that is to say that nothing happens without its being possible for one

who has enough knowledge of things to give a reason sufficient to determine why it is thus and not otherwise. This principle having been laid down, the first question we are entitled to ask will be: Why is there something rather than nothing? For 'nothing' is simpler and easier than 'something'. Further, supposing that things must exist, it must be possible to give a reason why they must exist just as they do and not otherwise.

8. Now this sufficient reason of the existence of the universe cannot be found in the series of contingent things, that is to say, of bodies and their representations in souls. For matter is in itself indifferent to motion or to rest, and to one motion rather than another, it cannot itself contain the reason of motion, still less of a particular motion. And although the present motion which is in matter arises from the one before it, and this in turn from the one before that, we are no further on however far we go; for the same question always remains. Thus the sufficient reason, which needs no further reason, must be outside this series of contingent things, and must lie in a substance which is the cause of this series, or which is a necessary being, bearing